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Fax Sheet

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TO: *Julie Campbell* *509-891-6748*
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FROM Jena Lewinsohn
DATE April 10, 1998

SUBJECT Preliminary review of the Draft summary meeting minutes from the 100 Area Assessment Plan presentation in Richland, April 6, 1998.

NO OF PAGES 8

Please review the Draft summary meeting minutes and provide **comments** to me **by Monday, April 13, 1998**.

100 Area Assessment Plan
Work Group Presentation
Richland, Washington
April 6, 1998
Summary Meeting Minutes

Attendees

Rick Roy, USFWS
Julie Campbell, USFWS
Barbara Harper, YIN
Mike Blanton, PNNL
Tom O'Brien, USFWS
Jena Lewinsohn, ECO
Arlene Tortoso, DOE
Dave Olson, DOE
Jamie Zeisloft, DOE
Bob Putz, BHI
Geoff Tallent, Ecology

Rick Roy introduced the approach he and Julie are taking for the assessment plan. Rick is working on the data review and summary confirmation of exposure section while Julie is putting together the Site history and background information.

Handout 1: Document Outline. Julie said the list of potential resources in Part I.B lists all possible natural resources; however, air resources drop out in the summary confirmation of exposure section. Rick said that definitions will be added to section I.B, Compare/contrast RI/FS process, in order to clarify the differences between risk assessment, damage assessment, and injury assessment. Rick stated that risk assessment is basically a prediction, but an injury assessment involves counting, and gets real data verses making a prediction. An injury assessment does not go into impacts to populations, that would come later during the quantification phase. Rick said that we need to separate these processes as much as possible. Barbara said that modeling and risk assessment can come into play when defining lost use. Rick agreed saying that modeling for lost use would be based off of human health, but the biological component would have to be measured. Jamie said that confirmation of exposure would need to be measured, not modeled. Barbara said that lab studies establishing dose-response curves would involve some modeling. Rick said that dose, response, and effect need to be quantified, then you can use models.

Part 1, Section I.A, Scope of the Assessment Plan. Julie said they'll need feedback on this section.

Part 1, Section I.C, Site History. Rick said this section will be brief. Jamie suggested the 1996 Hanford Environmental Summary Report as a valuable source for concise, site history information.

Part 1, Section 1.E, Trustee Coordination with Remedial Activities. USFWS needs input and consensus from the Council with the verbiage in this section. Jamie said the trustee integration policy would be helpful for the section. The Council is currently working on a finding for this integration concept. Rick said that without a PAS, USFWS needs input on addressing the situation of applying not implementing the NRDA process. Arlene asked if USFWS was looking for specific trustee coordination language within project documents to show how the coordination is currently being implemented. Rick said they need language that satisfies the trustees. Jamie said that language could be found in the groundwater RODs. Rick

said they don't need much detail, but can cite the policy letter for how to integrate and then project documents for how the integration is implemented. **ACTION - Jamie provide Rick and Julie a copy of the DOE integration policy.**

Part 1, Section II, Trustee Authority over Natural Resources. Jamie said the Council needs to look at the language in the 1100 Area PAS, although authority may be more clear cut for river resources. Rick said they need feedback with the language in this section. Julie stated they need input from the Tribes on their resources of interest otherwise this section would be very general. Rick said USFWS can make the language as specific or as vague as the trustees want, they just need direction. Rick said he spoke with Barbara the other day and will send out a letter to each Tribe requesting input for the cultural resource section. Another approach would be to keep that section general for now, so as not to hold up the assessment plan. Jamie asked what DOI's trust resources were. Rick said DOI's authority covers endangered species, resources on wildlife refuges, and they are a co-trustee with NOAA for steelhead as well as salmon, if listed. Rick stated that two other potential trustees need to be brought into this assessment plan, or at least made aware of this assessment plan: Department of Defense (DOD) and Warm Springs Indian Reservation. DOD owns some of the islands in the river (ie, Corp of Engineers). Rick didn't know what trust resources the Warm Springs Indian Reservation had, only that DOI identified them as a trustee. Rick will be sending the assessment plan to these entities, even though they are not participating on the Council, since they have trust responsibilities. Rick said that if you leave these other trustees out, something might happen later on if these other entities aren't happy with the way we're proceeding. Jamie agreed that DOE has the responsibility to let these other entities know about the releases. Dave asked if the National Park Service was a trustee. Jamie said that they are under DOI.

ACTION - Rick will provide letters to the Tribes requesting input.

ACTION - The Council needs to consider how to inform the other potential trustees of this activity.

Part 1, Section III, Release of Hazardous Substances. Julie stated that this section will start out with general releases, and then quickly focus on releases specific to this assessment. Rick re-stated this plan will focus on current releases and current conditions.

Part 1, Section IV, Description of Assessment Area. Rick can show exposure to natural resources from past releases all the way out to the ocean. The approach of the assessment plan is to divide this area into three units: river mile (RM) 385 to McNary Dam, McNary Dam to the mouth of the Columbia River, and Coastal Areas. Dave asked about pursuing injuries that occurred before 1980 when CERCLA was enacted. Rick said that needs to be a part of the discussion, but we're talking about exposure not about injury.

Part 1, Section V, Preliminary List of Services. Jamie asked if this section will go into all services and all natural resources all the way to coastal areas. Julie stated that this section ties into the section on trustee authority and they need to be consistent.

Part 1, Section VI, Summary confirmation of Exposure. They are looking at rads, inorganic hazardous substances, and organic hazardous substances. Rick is currently trying to track down some reports that looked at PCBs. Julie said now that the resources and services will have been identified, the document will focus on those that were exposed within each of the three river units. Rick said they don't have any exposure data on some resources within the 3 units. He requested that people get information to USFWS if they have it. What is needed is confirmation of exposure from data, not potential exposure. Traditionally, the regulations have

you compare concentrations against a standard such as drinking water. For biological resources, no federal or state criteria exist unless its tied to human consumption. Generally, for biological and geological resources, you can compare against background data. Jamie stated this information will drive injury and pathway studies. Rick said that a Washington Dept. of Health report conducted a risk assessment based on past sediment data. Oregon Dept. of Health also conducted a risk assessment using sediment data from McNary Dam down to the mouth of the Columbia.

Part 1, Section VI.D., Resource Recovery. Jamie asked if we should deal with this issue in the document. At one time there was more exposure than there is today. Barbara and Bob thought it was important to have this section in the document. Barbara asked how you would know if there has been recovery. She said it would be important to look at mutagenic endpoints that will persist even after the release stopped. Jamie said there is only so much we can do within the scope of this plan, and we may burn our money on all of these issues. Rick agreed, saying that an assessment plan could be written just on the issue of resource recovery. Barbara said it would be good to have the section as a placeholder, even if it's just a summary. A good question to ask would be: is the current injury a result of past exposure that hasn't recovered. It is important to tie the timing of the release and the time for recovery. Rick agreed, saying that Phosphorus 32 was not detected in the water column a few days after the release stopped; however, whitefish were concentrating P32 in their tissues. P32 was still biologically available after the release. Rick said the Council needs to decide whether to assess past injury, and to what extent this section needs to focus on past injuries. Rick said that modeling could be used to determine past injuries. Dave said that what is currently found at N-springs should dictate what we need to do for restoration of strontium. There is a need to address the current scenario with restoration dollars. Rick said that past injury is a whole other issue, but he is just bringing it up because it is part of the process, not necessarily part of this scope.

Part 2, Injury Determination and Pathways Plan. Rick said there won't be any since the 4 study plans were presented by Dan Audet last week. This section will be a laundry list of conceptual studies. Rick said they'll need assistance because the intent is to integrate this with the remediation projects. Rick would like to know what the project managers and the Council would like to see in this section. Julie said they will outline the resources that serve as pathways to other resources as well as the resources that may potentially be injured. Rick said one big question that remains is where the contaminants were sampled. He can only go on the data that is presented. If contamination is found in one area, you don't necessarily know the nature and extent of that contaminant for the whole site. You need to know where they sampled for that contaminant. That issue needs to be addressed. Jamie said this laundry list identifies problem areas, but the priorities and funding haven't been identified at this point. Priorities within the Council and the projects need to be addressed.

Part 2, Section II, Characterize Sources and Identify Releases. Jamie asked how this section relates to the Part 1 section on releases. Julie said this section focuses on current releases specific to the 100 Area. This section is not a re-iteration of Part 1, but will focus on pertinent releases that may be causing injury today.

Part 2, Sections III, IV, V, VI, VII. These sections will be a determination of injury, which is one step further than the confirmation of exposure section. Rick said they need input from the Tribes for the cultural resources section. Barbara asked how does lost use play into this.

For cultural resources, the use is inseparable from resource, thus the injury is directly tied to lost use. Jamie said he thought lost use would be an issue in the quantification stage. Rick said they would need generic study approaches from the Tribes. This could be a list of studies and a general framework for their approach. This section will focus on all resources interacting with the aquatic system and will identify potential pathways. Jamie said the groundwater resource is potentially out of the scope of this study, but it delivers the contaminants to aquatic system. Julie said they will identify if groundwater is injured, since it is a pathway to the river. Barbara said she thought cultural resources should be identified within the 1/4 mile river corridor. Jamie asked don't we need to identify the boundaries of this study? Potentially, we could be focusing on the whole 100 area. Rick said that pathways to the river system will be discussed. You need to lay the groundwork, even if it isn't given much detailed attention. All of these pathways will be specifically related to aquatic resources. Barbara said we need to state the limitations, but establish a good foundation.

Appendices. Rick briefly reviewed the titles of the appendices. Appendix D will include the laundry list of studies. Julie said that part 2 can be reworked, but the focus will be on those resources with data gaps, and those resources that are injured. Rick said they don't want to critique how past studies were done and how valid the data is, but the data gaps will be discussed. Some DOE documents state what data gaps there are. Julie said this is a three step process: 1. Gather data and figure out how to use it in the studies you design, 2. Injury determination 3. Injury quantification. Rick said the injury determination step is where you need to deal with data gaps on a more detailed level, such as possible gaps in the dose-response curve. Rick also mentioned that graphs, and maps will be included with summary tables such as the one in the handout.

The second handout: Status of 100 Area

Issues Section. One issue that hasn't been discussed is the title of the assessment plan (2nd page of handout). Damage assessment doesn't really belong in the title any more, although it is identified in the interagency agreement's scope of work. The trustees need to decide on a title. Julie suggested the title: Hanford Site 100 Area Assessment Plan, Volume 1: Aquatic Assessment. Rick wanted the Council to review section VII and provide language that all could agree upon (3rd page of handout). Jamie commented on the last paragraph of section VII. He said we have defined injury to groundwater, but the Council knew other contaminants such as chromium might be a problem so that triggered us into doing an assessment plan. Rick said the verbiage is an issue because we don't have a PAS that identifies areas of concern or any triggers for doing an assessment plan. Jamie said to scrap all of that last paragraph, and the Council will come up with a re-write. The language should also state the intent to integrate restoration with the projects. **ACTION- Work Group rewrite and agree upon the language in the last paragraph of section VII.**

Cultural Resources. For the first river unit (to McNary Dam), Rick said this section will state that cultural resources have been exposed. However, USFWS can't go into detail unless the Tribes have some criteria or have a different way to present the information. It might be good for the Tribes to review the cultural sections in the Couer D' Alene injury assessment. Rick would like consistent criteria from the Tribes, if possible. If there are issues that can't be agreed upon, this section can always be put on hold. Whatever we can deal with up-front would be beneficial in guiding this assessment. Rick will send letter to each signatory person within the Tribal

nations. John Stansfield was mentioned as the Nez Perce point of contact for CRCIA. The bottom line is Rick doesn't want to propose injuries to cultural resources without them being identified by the Tribes.

Rick also stated USFWS might need assistance with generating maps for this document. That would depend upon the level of detail the Council expects. Jamie suggested contacting Rick Blancq, who supports DOE-ER.

Section VIII, Conclusions. This section is still a draft. This section discusses terrestrial resource exposure, i.e., canada goose eggs and strontium, black locust trees and tritium. This section will also identify pathways. The question came up if a goose is considered a terrestrial or aquatic organism. Geese use both systems, it is a matter of definition. The hazardous substances of issue are chromium, strontium, and possibly tritium. No criteria are established for the radionuclides. If any other hazardous substances comes up, the plan isn't limited to just these three substances. These three substances are an issue based on the number of elevated concentrations reported in the documents, the concentrations in the porewater, and the number of resources that had confirmations of exposure.

Chart. USFWS has identified 15 contaminants that have exposed certain resources. The assessment plan won't always specify what operable unit the release is from. Strontium and tritium have the most confirmations of exposure. The chart is broken down into life stages, because the life stage is critical to evaluating toxicity from exposure. Copper is found in sediment and can be tied to Hanford operations. The Hanford townsite is outside of the 100 Area so releases at that site aren't addressed. The chart identifies exposure above MCLs for groundwater and surface water, above background for sediment, and invertebrates and birds should be compared to background values, but typically that data isn't available. The cultural resource row has each category identified with a yes, because something has been exposed. If anything has been exposed, USFWS checked yes under cultural resources. Barbara said cultural resources and cultural issues should be concerned with background levels. Jamie stated the regulations address injury for all resources except cultural, therefore, the Tribes need to propose a process for establishing exposure. Barbara said its a matter of semantics whether to call it cultural use of resources verses cultural resources. Rick said they need criteria for exposure. This chart uses any exposure as a default for exposure to cultural resources. Julie said that the Coeur D' Alene Tribe has essentially claimed everything as a cultural resource but have tighter definitions with reference to resources within reservation boundaries. Rick said he can bring Dan Audet in to brief the Council and/or the Tribes on how the Coeur D' Alene Tribe approached their assessment plan. Rick said the criteria for establishing injury to biological resources are (1) injury needs to be established in both the lab and field, (2) to have injury, the effect must be specific to the contaminant, and (3) the injury must be reproducible and consistent. The Coeur D' Alene Tribe identified cultural sites, and specific plants and animals. Jamie thought cultural resources came in during the quantification phase. Julie said the Coeur D' Alene Tribe established a cultural loss at contaminated sites they couldn't use, even though the plants, themselves, were not contaminated. The injury was to the Tribal members not being able to go to those areas which resulted in a lost use. Mike said this chart doesn't track well with the CRCIA document. During the first screen of contaminants, CRCIA used water quality criteria and MCLs to identify potential contaminants of concern. Rick said most of the information on this chart is out of the Peterson document. Carbon 14 exceeded an MCL in one well site; therefore, you have exposure and injury. Quantification of that injury is another step.

Section VIII, Conclusions (again). Carbon 14 and TCE were only found at one site. Presently, USFWS cannot confirm exposure. From the State of Oregon biota and water samples, 1983 was the last time anything was detected coming down the river. The primary focus should center on contaminant sources because if we don't find injury at the source, it's highly likely we won't find injury anywhere else. Biologic life stages to be investigated are resident fish species, macroinvertebrates (one variable to consider is the river flux), and chinook salmon.

Jamie said he had read about the water table dropping at N-Area because there are no more discharges. New monitoring wells have been established because some old wells have dried up. Barbara said that a meeting she attended last week discussed the low seep rate was only because the pump and treat system had reduced it by 80-90%. She also asked if the pump and treat system counts as mitigation since it is an interim remedy. Jamie said we need to see if seeps are still a pathway with the pump and treat system operating. The pump and treat system could become a final remedy if it remedies the injury via stopping the pathway. Tom said that even if a pathway is stopped, such as groundwater, that doesn't mean injury still isn't occurring from chromium or strontium in the sediments.

Summary Section (1st page of handout). Jamie asked if USFWS had any thoughts on studies for strontium. Rick asked Mike to summarize the sculpin study at N-springs. Mike said it was a cooperative study between PNNL and the Washington State Dept. of Health. The study focused on contaminants associated with N-springs. Media samples (water, sediment, milfoil, reed canary grass, fish (sculpin), caddisfly, clamshells, and periphyton) were collected. Transects were established for the water media 15 feet from shore (5 samples were collected 1 inch above the substrate). Twenty sculpin were collected. Livers were analyzed for metals and the whole body was analyzed for radionuclides. Mike didn't have the numbers in front of him, but they found strontium concentrations in the range of 0.7 picocuries per gram in the sculpins near N-springs which is 2 times greater than the sculpins collected at the Vernita background site. One bit of anecdotal information from that study, the sculpins at N-springs were noted to have an increased incidence of parasitism verses the sculpins at the Vernita site. The higher incidence of parasitism isn't necessarily contaminant related. The sculpin study focused on monitoring, not injury, so no conclusions can be drawn. There has been no date set for when the report will come out. Jamie said this study will be of value for us, but it wasn't designed as an injury study. Mike added that the QA/QC of the study is in line with the SESP program. Rick suggested strontium be handled along the same lines as the chromium study. The sculpin study should be expanded to look at injury; however, the study has confirmed exposure. Jamie asked if lab studies would first be necessary with strontium since criteria currently does not exist. Arlene asked what the receptors would be. Jamie suggested looking at the sensitive species that reside at N-springs. Rick said that 8 picocuries per liter has been exceeded at various sites on Hanford, not just N-springs. Therefore, injury to groundwater has been established. What we don't have are other criteria such as the lowest observed effect level (LOEL) for strontium. Jamie said we need to start with concentrations below the MCL, and then go to what the maximum concentration is at Hanford. Rick said you can detect strontium at very low levels. Another consideration is to keep your endpoints consistent when you're dealing with different species and the same contaminant. That way you can compare sensitivities. Barbara said that the mechanisms and the impact on target organs may be different. Barbara said the Tribes are concerned about preserving gene pools, and since chromium is a carcinogen, mutagenic endpoints would be important. Rick agreed, and said mutagenic endpoints would also be

important for radionuclides. Rick wanted to clarify that the approach would be to look at injury from strontium, not just necessarily strontium at N-springs. We need to establish the effects from strontium irregardless of where it is located. They also need to look at sites for receptor species and the strontium concentrations there. Receptors would be similar to what was used in the chromium study; the other sites with strontium are in the vicinity of salmon spawning areas. Jamie said it could get complicated if you are using a sensitive species that doesn't reside at N-springs since this study would drive N-springs cleanup. Rick said species such as sculpins and whitefish would also be important to look at. Mike said PNNL will run the sculpin data through CRITR risk assessment model to get risk values. Rick said a true dose-response curve needs to be generated. Then you can compare the lab results with what you see in the field. We also need to make sure the decision making for the strontium remedial work is consistent with the timing of the assessment plan and subsequent studies. Rick asked when the remedy is to be decided at N-springs. **ACTION - Jamie will find out the schedule for final remedy at N-springs.** Julie said the logistics for doing the strontium study need to be accounted for. Jamie said the project would have to fund the strontium study, which is different from the chromium studies.

Rick said he doesn't anticipate any major changes from this outline. The draft assessment plan is due March 15th. He does need to follow up on the PCBs issue, and get with Brett Tiller on heron fledgling success. Mike said Jeff Marcos is writing his graduate thesis on metals and organic compounds in heron fledglings. He identified the locations of the rookeries, where adults were feeding, and what the fledglings were being fed. Then, Jeff analyzed the livers and excrement of the fledglings. Rick thought it would be hard to tie the contaminants to a specific release. Mike said the herons fledged early the year of the study so Jeff didn't get background values from the fledglings before they started to feed.

Jamie wants to schedule a work group meeting next week to discuss the assessment plan. **ACTION - Jamie will schedule a meeting next week.**

TRANSMISSION RESULT REPORT (APR 10 '98 04:16PM)

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